THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 21

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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Ex parte REINHARD DONGES, DIETHART REICHEL and
BIRGIT KESSLER

_____

Appeal No. 1996-0823
Application No. 08/217,189[1]

_____

ON BRIEF

_____

Before WINTERS, OWENS and LORIN, Administrative Patent Judges.

WINTERS, Administrative Patent Judge.

DECISION ON APPEAL

This appeal was taken from the examiner's decision rejecting claims 1 through 4, 8 through 16 and 18, which are all of the claims remaining in the application.

Claims 1 and 15 are representative:

1. A process for the preparation and work-up of N-hydroxyalkylchitosan

[1] Application for patent filed March 24, 1994.

soluble in aqueous medium, consisting essentially of the steps of

> dispersion of chitosan in an aqueous medium consisting essentially of water,
>
> subsequent hydroxyalkylation of the dispersed chitosan with epoxides and
>
> subsequent work-up of the N-hydroxyalkylchitosan,
>
> which consists essentially of carrying out the hydroxyalkylation up to an average degree of substitution of 2.0 and performing the work-up of the N-hydroxyalkylchitosan by drying.

15. A N-hydroxyalkylchitosan obtained by the process as claimed in claim 1, wherein the N-hydroxylkylchitosan has a residual content of hydroxyalkylation reagent of less than 5 ppm.

The reference relied on by the examiner is:

Lang et al. (Lang)	4,835,266	May 30, 1989

The issue presented for review is whether the examiner erred in rejecting claims 1 through 4, 8 through 16 and 18 under 35 U.S.C. § 103 as unpatentable over Lang.

On consideration of the record, we shall sustain the examiner's rejection of claim 15. We do not, however, sustain the rejection of claims 1 through 4, 8 through 14, 16 and 18.

Claim 15

In column 10, example 4, Lang discloses a process for the preparation and work-up of an N-hydroxypropyl-chitosan by (1) dispersing lower-molecular chitosan in water;

(2) reacting the dispersed chitosan with propylene oxide to form N-hydroxypropyl-chitosan; and (3) working up the product in a series of steps which include, inter alia, removing excess alkylation agent and drying at 50° C in a vacuum drying oven. In our judgment, the product of claim 15 reasonably appears to be the same or substantially the same as the product prepared by Lang In column 10, example 4.

As stated in In re Thorpe 777 F.2d 695, 697, 227 USPQ 964, 966 (Fed. Cir. 1985),

> even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in a product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. [citations omitted].

Likewise, as the court stated in In re Brown 459 F.2d 531, 535, 173 USPQ 685, 688 (CCPA 1972),

> when the prior art discloses a product which reasonably appears to be either identical with or only slightly different than a product claimed in a product-by-process claim, a rejection based alternatively on either section 102 or section 103 of the statute is eminently fair and acceptable. As a practical matter, the Patent Office is not equipped to manufacture products by the myriad of processes put before it and then obtain prior art products and make physical comparisons therewith.

Following those principles of law, we find that the examiner established a prima facie case of obviousness of claim 15 and that the burden of persuasion shifted to appellants

to show a patentable difference between the product of claim 15 and the product described by Lang in column 10, example 4. As stated in a similar context in In re Fessmann, 489 F.2d 742, 745, 180 USPQ 324, 326 (CCPA 1974), "It was appellant's duty to present evidence which would demonstrate the unobvious character of his claimed invention over the cited references". This appellants have not done.

On the strength of the teaching in Lang, column 10, example 4, and in the absence of rebuttal evidence by the appellants, we affirm the examiner's rejection of claim 15 under 35 U.S.C. § 103.[2]

Claims 1 through 4, 8 through 14, 16 and 18

As stated in In re Sneed, 710 F.2d 1544, 1548, 218 USPQ 385, 388 (Fed. Cir. 1983),

> It is axiomatic that, in proceedings before the PTO, claims in an application are to be given their broadest reasonable interpretation consistent with the specification, and that claim language should be read in light of the specification as it would be interpreted by one of ordinary skill in the art. [citations omitted].

[2] We note page 9, example 3 of appellants' specification, describing the hydroxy propylation of chitosan. As reported there, the aqueous reaction mixture containing hydroxypropyl-chitosan has 1.5 ppm propylene oxide before drying. That amount is well below the amount of propylene oxide reported in examples 1, 2, and 4 and meets the limitation in claim 15 ("wherein the N-hydroxyalkylchitosan, has a residual content of hydroxyalkylation reagent of less than 5 ppm"). In the event of any further prosecution of the subject matter of this application, e.g., by way of a continuing application, we recommend that both appellants and the examiner consider the significance of example 3 in the instant specification.

Further, the phrase "consisting essentially of" limits the scope of a claim to the specified ingredients or steps and those that do not materially affect the basic and fundamental characteristics of the claimed invention. See In re Herz 537 F.2d 549, 551, 190 USPQ 461, 463 (CCPA 1976).

Applying those principles of claim interpretation to the facts before us, we conclude that claims 1 through 4, 8 through 14, 16, and 18 preclude the steps described by Lang where precipitation and work-up of product are carried out with acetone. See Lang, column 9, lines 4 through 9 and column 10, lines 47 through 55. This follows because: (1) appellants' claims recite that the work-up of N-hydroxyalkylchitosan "consists essentially of" performing the work-up by drying and (2) the basic and fundamental characteristics of appellants' claimed process require dispersion of chitosan in an aqueous medium consisting essentially of water, hydroxy-
alkylation of the dispersed chitosan with epoxides, and subsequent work-up of the N-hydroxyalkylchitosan, but without an extraction step and without precipitation and work-up of product using a flammable organic solvent such as acetone. See the instant specification, page 1, line 32 through page 2, line 24; page 3, line 32 through page 4, line 1; and page 5, line 33 through page 6, line 7.

Giving appellants' claims their broadest reasonable interpretation consistent with the specification, and considering the usage "consists essentially of", we conclude that

claims 1 through 4, 8 through 14, 16, and 18 preclude the steps described by Lang where precipitation and work-up of product are carried out with acetone.

According to the examiner, a person having ordinary skill in the art would have recognized that Lang's "intervening" work-up steps are not necessary for the recovery of N-hydroxypropyl-chitosan. The examiner argues that it would have been obvious to forego Lang's "intervening" steps, which precede drying and where precipitation and work-up of product are carried out with acetone, and "to proceed directly to drying" of the desired product. See the Examiner's Answer, page 5, lines 13 through 23. The examiner argues that a person having ordinary skill in the art, by thus modifying the process of Lang set in forth in column 10, example 4, would have arrived at the instantly claimed process. We disagree.

On reflection, we believe that the examiner's proposed modification of the prior art process relies on the impermissible use of hindsight. The only reason, suggestion, or motivation to omit Lang's intervening work-up steps and "to proceed directly to drying" stems from appellants' specification and not the cited prior art. In contrast with appellants' specification and claims, Lang requires the intervening work-up steps which precede drying and where precipitation and work-up of product are carried out with acetone. Accordingly, we reverse the examiner's rejection of claims 1 through 4, 8 through 14, 16, and 18 under 35 U.S.C. § 103.

CONCLUSION

In conclusion, for the reasons set forth in the body of this opinion, we affirm the rejection of claim 15 under 35 U.S.C. § 103 as unpatentable over Lang, but we reverse the rejection of claims 1 through 4, 8 through 14, 16 and 18 under 35 U.S.C. § 103 as unpatentable over Lang.

The examiner's decision is affirmed-in-part

AFFIRMED-IN-PART

SHERMAN D. WINTERS Administrative Patent Judge	)	
TERRY J. OWENS Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
HUBERT C. LORIN Administrative Patent Judge	)	

vsh

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